Table 2. Studies comparing reproductive success and survival of hatchery and natural salmonids

Study	Species	Individual or Group Survival	Genetic or environ. effect	Local stock?	Hatchery breeding success relative to wild
McGinnity et al. (unpublished data)	Atlantic salmon	individual	genetic	some yes; some no	Compared crosses involving wild, farmed, ranched (hatchery) salmon. The hatchery group was native and recently founded, the farmed group non-native. All groups except native ranched showed significantly reduced lifetime fitness compared to wild.
McGinnity, P., Stone, C., Taggart, J.B., Cooke, D., Cotter, D., Hynes, R., McCamley, C., Cross, T. and A. Ferguson. 1997. Genetic impact of escaped farmed Atlantic salmon (*Salmo salar* L.) on native populations: use of DNA profiling to assess freshwater performance of wild, farmed and hybrid progeny in a natural river environment. J. Marine Sci. 54: 998-1008.	Atlantic salmon	individual	confounded	no	Used DNA profiling to measure reproductive success of farmed and wild Atlantic salmon in the wild and found that fish-for-fish farmed salmon produced significantly fewer parr and smolts than wild fish. The farmed salmon stock had been in artificial culture for at least six generations.
Reisenbichler and Rubin (unpublished data)	chinook	group	genetic	yes	Hatchery x Hatchery crosses have 92% eyed-egg-to-yearling survival of Wild x Wild crosses in stream; 129% in hatchery.
Ford, Fuss and Hard (unpublished data)	coho	individual	confounded	yes	~160% to newly emerged fry stage, including both mating success and progeny survival. Hybrids ~100%.
Chilcote, M.W., Leider, S.A. and J.J. Loch. 1986. Differential reproductive success of hatchery and wild summer-run steelhead under natural conditions. Trans. Am. Fish. Soc. 115:726-735. Leider, S.A., Hulett, P.A., Loch, J.J. and M.W. Chilcote. 1990. Electrophoretic comparison of the reproductive success of naturally spawning transplanted and wild steelhead trout through the returning adult stage. Aquaculture 88:239-252.	steelhead	group	confounded	no	~30% to smolt stage and <10% to adult stage. Includes both breeding success and progeny survival.
Kostow, Phelps and Marshall (unpublished data)	steelhead	group	confounded	no	~14% to adult stage, including both mating success and progeny survival.

Study	Species	Individual or Group Survival	Genetic or environ. effect	Local stock?	Hatchery breeding success relative to wild
McLean, Bentzen and Quinn (unpublished data)	steelhead	group	confounded	no	<25% to smolt stage, including both mating success and progeny survival
Moran and Berntson (unpublished data)	steelhead	individual	confounded	yes	~20% to yearling stage, including both mating success and progeny survival. Wild x Hatchery hybrids <20%; Hatchery x Wild hybrids ~60%.
Reisenbichler, R.R. and J.D. McIntyre. 1977. Genetic differences in growth and survival of juvenile hatchery and wild steelhead trout, *Salmo gairdneri*. J. Fish. Res. Board Can. 34:123 128.	steelhead	group	genetic	yes	Hatchery x Hatchery crosses have ~80% survival of Wild x Wild crosses from eyed-egg to yearling. The opposite pattern was seen in a control hatchery pond. Growth rates higher for Hatchery x Wild and Hatchery x Hatchery fish larger than Wild x Wild fish.
Rubin and Reisenbichler (unpublished data)	steelhead	both	genetic	yes	In streams, Hatchery x Hatchery fish have ~80% survival of Wild x Wild fish. In hatchery, Hatchery x Hatchery fish have higher survival than Wild x Wild fish; hybrids are intermediate. Hatchery x Hatchery fish have higher growth rates than Wild x Wild fish in both environments. After release from hatchery, Hatchery x Hatchery smolts have higher survival than Wild x Wild smolts, partially due to their larger size.